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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,414	10/10/2000	Ali Afzali-Ardakani	YOR920000360US2	5000

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01/30/2002

Daniel P. Morris  
Intellectual Property Law Dept.  
IBM Corporation  
P.O. Box 218  
Yorktown Heights, NY 10598

EXAMINER

HAMILTON, CYNTHIA

ART UNIT

PAPER NUMBER

1752

DATE MAILED: 01/30/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/685,414

Applicant(s)

AFZALI-ARDAKANI ET AL.

Examiner

Cynthia Hamilton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☒ Claim(s) 10, 12, 14 is/are objected to.
- 8) ☒ Claim(s) 1-22 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-9, drawn to a method of forming a pattern with e beam, classified in class 430, subclass 296.
  - II. Claims 10-15, drawn to a composition, classified in class 430, subclass 288.1.
  - III. Claims 16-22, drawn to a method of patterning a material selected from semiconductors, ceramics, organics and metals wherein etching of material occurs, classified in class 430, subclass 318.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used to form etched materials as in the process of Group III wherein E beam imaging is not used but instead ultraviolet irradiation is used to activate the photoacid generator.
3. Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used to mold automobile parts or in electron beam imaging of lithographic printing plates wherein no etching of the substrate occurs.

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4. Inventions I and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together as evidenced by the use of an organic solvent to develop the image of Group I and the use of an aqueous alkaline developer solution to develop the image of Group III.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group III, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group III, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Mr. Daniel P. Morris on January 15, 2002 a provisional election was made without traverse to prosecute the invention of Group II, claims 10-

15. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1-9 and 16-22 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

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9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. The disclosure is objected to because of the following informalities: On page 12, third line from the bottom, "slats" should be --- salts ---, page 13, third line of text from the bottom, "chloror" should be --- chloro ---, page 14, the last structure should have bonds to C<sub>1</sub> and C<sub>2</sub>, page 15, second paragraph, line 4, "Ebeam" should be --- E beam ---, page 16, tenth line, "3a" and "6a" don't make sense, should this be alpha?, last line, should "tite" be --- titer ---?

Appropriate correction is required.

13. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed. The examiner has noted that the black and white photographs which make up the drawing are required to show the nature of the results achieved and as such would be acceptable under 37 CFR 1.84 (b) (1) as the only practicable medium for illustrating the claimed invention.

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14. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 11-13 are dependent upon claim 13. This makes no sense in view of claim 13 not being a previous claim. Claims 14-15 dependent upon claim 13 make no sense either in view of claim 13 being dependent upon itself. The examiner asks if the proper claim dependency should be on claim 10?

15. Claims 11 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 11 and 15 recite the limitation "said phenolic resin" in line 1. There is insufficient antecedent basis for this limitation in these claims or claim 13 or claim 10. In line three of claim 15 there is no antecedent basis for "said dendrimer resin nor polymer"

16. Claim 14 is objected to because of the following informalities: In line 2, "onlium" should be --- onium ---. Appropriate correction is required.

17. Claim 10 is objected to because of the following informalities: In last line, there should be an "and" before "an organic base. Appropriate correction is required.

18. Claim 12 is objected to because of the following informalities: In last line, there should be an "and" before "alkoxys". Appropriate correction is required.

19. The examiner notes that if claim 11 is made dependent upon claim 10 and said phenolic resin becomes said dendrimer, then the claims are essentially duplicates and as such they would be objected to. However, if the dendrimer were to become a phenolic resin in claim 11 this would not be so.

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20. Claims 10-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 10, last line, reference is made to "an organic base". There is no other use of this term in the original disclosure except for the claims. There is no example given. Does this organic base refer to base compound or a substrate or something else such as a polymeric matrix forming the base of the composition? Insufficient description is given at this point for a worker in the art to determine the meaning of this term and thus make the composition. The examiner has assumed for reasons of examination that this term refers to a compound with base properties as in acid and base.

21. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. R is found in the general formula in claim 12 but is not defined. Thus, the limits of the claimed invention are unclear.

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dendrimers with aliphatic hydroxyl containing groups inclusive of those with at least eight hydroxyl groups are known in the art as shown by Nishikubo et al (JP 2000-264953 A) in on page 12 and Taniguchi et al (JP 02-53748 A) wherein n is 8 and R is H. However, these references make no use of these dendrimers in photoresists or compositions with glycoluril crosslinkers. Aoi et al make use of dendrimers as found in col 10 [XV] in positive photosensitive compositions but there is no use of crosslinkers or aliphatic hydroxyl groups. Onishi et al (118:49297) use acylated calixarene compounds with crosslinkers in negative

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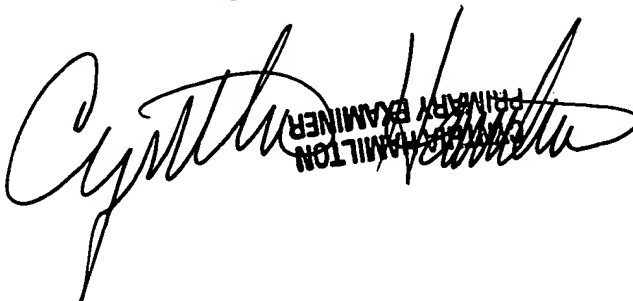
working photosensitive compositions. Uneda (127:270392), Nakayama et al (131:221141) and Takeshi et al (131:293201) all teach using calix arenas, ie dendrimers, in negative resists with photoacid generators and crosslinkers but no disclosure to aliphatic hydroxyl dendrimers or glycoluril crosslinkers is made. The crosslinkers disclosed are polyphenols. However, the prior art fails to make obvious the combination of glycoluril crosslinkers and aliphatic hydroxyl dendrimers in compositions of matter combined with photoacid generators.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305- 0661.*

Cynthia Hamilton  
January 24, 2002



Handwritten signature of Cynthia Hamilton, Primary Examiner, with a circular stamp reading "PRIMARY EXAMINER" and "CYNTHIA HAMILTON" overlaid on the signature.